WHAT IS CLAIMED IS:

1. An interference source identification method for wireless communications, comprising the steps of:

using time of arrival of a wireless burst as a synchronization basis to compound synchronously a frequency word, a time different of arrival (TDOA) word, an amplitude word, and an angle of arrival (AOA) word of said burst into a burst descriptor word (BDW) having a signal parameter set, said signal parameter set comprising said frequency word, said TDOA word, said amplitude word, and said AOA word;

comparing said BDW with a previous said BDW and a burst library to screen out non-interference signals and obtain a matched result, said matched result comprising a plurality of said BDWs of interference sources;

using a statistical analysis process to categorize said BDWs of said matched result into a source discriminator file (SDF); and

comparing said SDF with a previous said SDF and a SDF library to generate an interference source identification result.

2. The method as claimed in Claim **1**, wherein said comparing said BDW with a previous said BWD step is to compare said frequency word, said TDOA word, said amplitude word, and said AOA word of said BDW and those of said previous BDW to determine if all respective comparisons are within the same tolerance range so that said BDW and said previous BDW can be considered as from the same interference source.

3. The method as claimed in Claim **1**, wherein said burst library defines a plurality of first parameter range sets, and each said first parameter range set further

comprises an upper bound and a lower bound for said frequency word and said TDOA word, respectively.

4. The method as claimed in Claim 3, wherein said comparing said BDW and said burst library step is to compare said frequency word and said TDOA word with said upper bound and said lower bound for said frequency word and said TDOA word specified in said first parameter range sets in said burst library to determine if said frequency word and said TDOA word are within the range specified by said upper bounds and said lower bounds to be considered as from a specific interference source.

5. The method as claimed in Claim 3, wherein said comparing said BDW and said burst library step is to compare said frequency word and said TDOA word with said upper bound and said lower bound for said frequency word and said TDOA word specified in said first parameter range sets in said burst library to determine if said frequency word and said TDOA word are not within the range specified by said upper bounds and said lower bounds so that said BDW can be considered as from a non-interference source, and can be excluded for further processing.

6. The method as claimed in Claim 3, wherein said comparing said BDW and said burst library step is to determine if said BDW is from an interference source based on the result that said BDW and said previous BDW are determined to be from the same signal source.

7. The method as claimed in Claim 4, wherein said statistical analysis process further comprises the steps of:

de-interleaving said interleaved bursts in accordance with a plurality of parameter range specified by a second parameter range set to obtain a plurality of burst groups of the source, said signal parameter set of each said BDW of said

burst group of the source can fall within the upper bound and the lower bound of said parameter range of said second parameter range set of said burst group of the source; and

averaging each said parameter of said signal parameter set of each said BDW of said burst group of the source to obtain an average signal parameter set, and including said average signal parameter set in a said corresponding SDF of said burst group of the source, said average parameter set comprising an average frequency word, an average TDOA word, an average amplitude word, and an average AOA word.

8. The method as claimed in Claim **7**, wherein said SDF has a variance signal parameter set, said variance signal parameter set further comprises a variance frequency word, a variance TDOA word, a variance amplitude word, a variance AOA word of said signal parameter, each variance of said variance signal parameter set is the variance of said parameter of said signal parameter set of a plurality of said BDW of said burst group of the source.

9. The method as claimed in Claim **9**, wherein said SDF library defines a plurality of third parameter range sets, each of said third parameter sets comprises an average upper bound, an average lower bound, and a variance threshold of said frequency word and said TDOA word, respectively.

10. The method as claimed in Claim **8**, wherein said comparing said SDF and said previous SDF step is to identify said SDF and said previous SDF are from the same signal source when said SDF and said previous SDF have the difference in said average frequency words, said average TDOA words, said average amplitude words, said average AOA words, said variance frequency words, said

variance TDOA words, said variance amplitude words, and said variance AOA words all falling within a tolerance range.

11. The method as claimed in Claim **9**, wherein said comparing said SDF and said SDF library step to identify said SDF as from a specific interference source when said average frequency word and said average TDOA word of said SDF are within the range specified by said upper and lower bounds of said average frequency word and said average TDOA word specified in any said third parameter range sets in said SDF library, and said variance frequency word and said variance TDOA word of said SDF are within the range specified by said variance thresholds of said frequency word and said TDOA word specified in any said third parameter range sets in said SDF library.

12. The method as claimed in Claim **9**, wherein said comparing said SDF and said SDF library step to identify said SDF as from an unknown interference source when said average frequency word and said average TDOA word of said SDF are not within the range specified by said upper and lower bounds of said average frequency word and said average TDOA word specified in any said third parameter range sets in said SDF library, and said variance frequency word and said variance TDOA word of said SDF are not within the range specified by said variance thresholds of said frequency word and said TDOA word specified in any said third parameter range sets in said SDF library.

13. The method as claimed in Claim **10**, wherein said comparing said SDF and said SDF library step is to determine if said SDF is from an interference source based on the result that said SDF and said previous SDF are determined to be from the same signal source.

14. A device for identifying interference source in wireless communications, comprising:

a correlation compound module, said correlation compound module using the arrival time of a burst as a synchronization basis to compound a frequency word, a TDOA word, an amplitude word, and an AOA word of said burst into a BDW having a signal parameter set, said signal parameter set comprising said frequency word, said TDOA word, said amplitude word, and said AOA word;

a matching and screening module, said matching and screening module comparing said BDW with a previous BDW and a burst library to screen out non-interference sources and obtain a matching and screening result;

a statistical analysis module, said statistical analysis module categorizing said BDWs of said matching and screening result to obtain an SDF; and

a matching and identification module, said matching and identification module comparing said SDF with a previous SDF and a SDF library to obtain an identification result.

15. The device as claimed in Claim **14**, wherein said burst library defines a plurality of first parameter range sets, each of said first parameter sets comprising an upper bound and an lower for said frequency word and TDOA word, respectively.

16. The device as claimed in Claim **16**, wherein said statistical analysis module comprises:

a de-interleaving unit, said de-interleaving unit is to de-interleave interleaved bursts in accordance with a plurality of parameter range defined by a second parameter range set to obtain a plurality of burst groups of the source, each

said parameter of each said BDW of said burst group of the source falling within said upper bound and said lower bound specified by said burst group of the source; and

a statistical unit, said statistical unit using said signal parameters of each said BDW of said burst group of source to calculate an average signal parameter set and a variance signal parameter set, and assigning said average signal parameter set and said variance signal parameter set to said SDF corresponding to said burst group of source, said average signal parameter set further comprising an average frequency word, an average TDOA word, an average amplitude word, and an average AOA word, and said variance signal parameter set further comprising a variance frequency word, a variance TDOA word, a variance amplitude word, and a variance AOA word.

17. The device as claimed in Claim **14**, wherein said SDF library defines a plurality of third parameter range sets, each of said third parameter sets comprises an average upper bound, an average lower bound and a variance threshold of said frequency word and TDOA word, respectively.

18. An interference source identification system for wireless communications, comprising:

a direction finding antenna for receiving and processing radio frequency (RF) signals and providing back stage for extracting directional information of an interference source;

a converter for converting said RF signals into intermediate frequency (IF) signals;

a receiver for measuring and calculating frequency, time difference of arrival (TDOA), amplitude, and angle of arrival (AOA) and outputting digitized frequency word, TDOA word, amplitude word, and AOA word;

an interference source identification device for generating an interference source identification result based on comparing said frequency word, said TDOA word, said amplitude word, and said AOA word with an interference source library; and

an output device with a control interface, said output device for outputting information of an interference source comprising at least a name, a frequency coverage, number of bands, frequency types based on said identification result, and using said control interface to adjust said component parameters in said system.